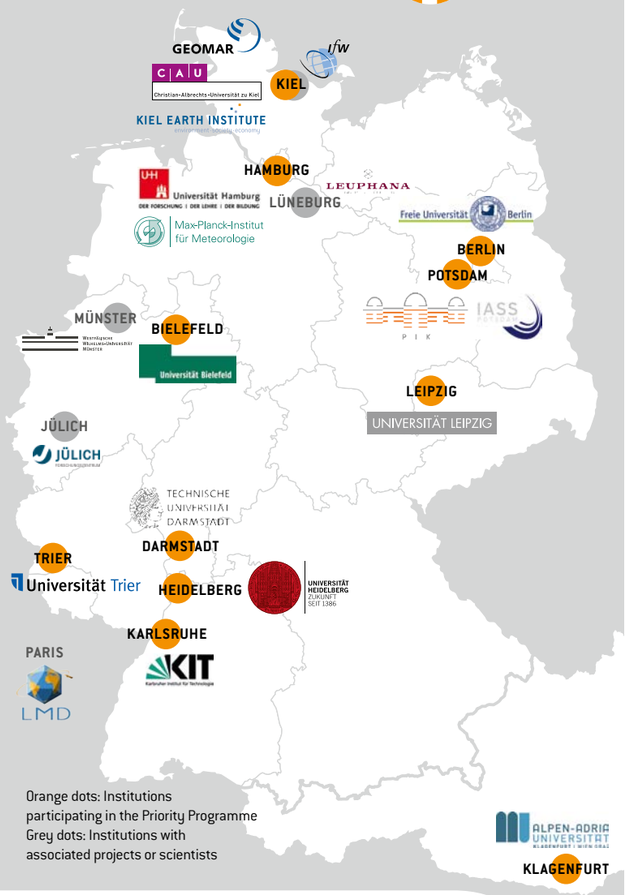
PRIORITY PROGRAMME 1689

CLIMATE ENGINEERING Risks, Challenges, Opportunities?



Orange dots: Institutions participating in the Priority Programme
Grey dots: Institutions with associated projects or scientists

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RESEARCH PROJECTS PRIORITY PROGRAMME 1689

CE-SciPol
How to Meet a Global Challenge? Climate Engineering at the Science-Policy Nexus: Contested Understandings of Responsible Research and Governance
- Alpen-Adria-Universität Klagenfurt
- Technische Universität Darmstadt

C-E-THICS
Arguing About Climate Engineering: Towards a Comprehensive Ethical Analysis of an Ongoing Debate
- Karlsruhe Institute of Technology
- Kiel University
- GEOMAR Helmholtz Centre for Ocean Research Kiel

ComparCE
Comparative Assessment of Potential Impacts, Side-Effects and Uncertainties of Climate Engineering Measures and Emission-Reduction Efforts
- GEOMAR Helmholtz Centre for Ocean Research Kiel
- Max Planck Institute for Meteorology, Hamburg

FASSI
Fingerprint Analysis of Extreme Events Caused by Stratospheric Sulfur Injections
- Freie Universität Berlin

LEAC
Learning About Cloud Brightening under Risk and Uncertainty: Whether, When and How to do Field Experiments
- Leipzig University
- Kiel University

CEMICS
Contextualizing Climate Engineering and Mitigation: Illusion, Complement or Substitute?
- Universität Hamburg
- Institute for Advanced Sustainability Studies Potsdam
- Potsdam Institute for Climate Impact Research

RADMAN
Limitations of Climate Engineering Efficacy by Different Types of RADiation MANagement
- Heidelberg University
- Karlsruhe Institute of Technology
- National Center for Scientific Research / Laboratoire de Météorologie Dynamique, France

CEIBRAL
Climate Engineering Impacts: Between Reliability and Liability
- Bielefeld University
- Heidelberg University
- Trier University
- Max Planck Institute for Meteorology, Hamburg

CE-Land
Climate Engineering on Land: Potentials and Side-Effects of Afforestation and Biomass Plantations as Instruments for Carbon Extraction
- Potsdam Institute for Climate Impact Research
- Max Planck Institute for Meteorology, Hamburg

CLIMATE ENGINEERING Risks, Challenges, Opportunities?

Research to Evaluate Climate Engineering

Risks, Challenges, Opportunities?

Priority Programme 1689 of the German Research Foundation DFG

DFG

CLIMATE ENGINEERING

Climate Engineering summarizes several large-scale technical methods that have been proposed to reduce either the atmospheric CO_2 concentration or incoming solar radiation. Given the unabated rise in atmospheric CO_2 concentrations, Climate Engineering is currently being discussed as a possible option for dealing with climate change. But could Climate Engineering actually be a realistic option? A comprehensive scientific assessment, characterized by an appropriate disciplinary breadth and depth, of the potential environmental, political and moral risks, challenges and opportunities of Climate Engineering is not yet available.

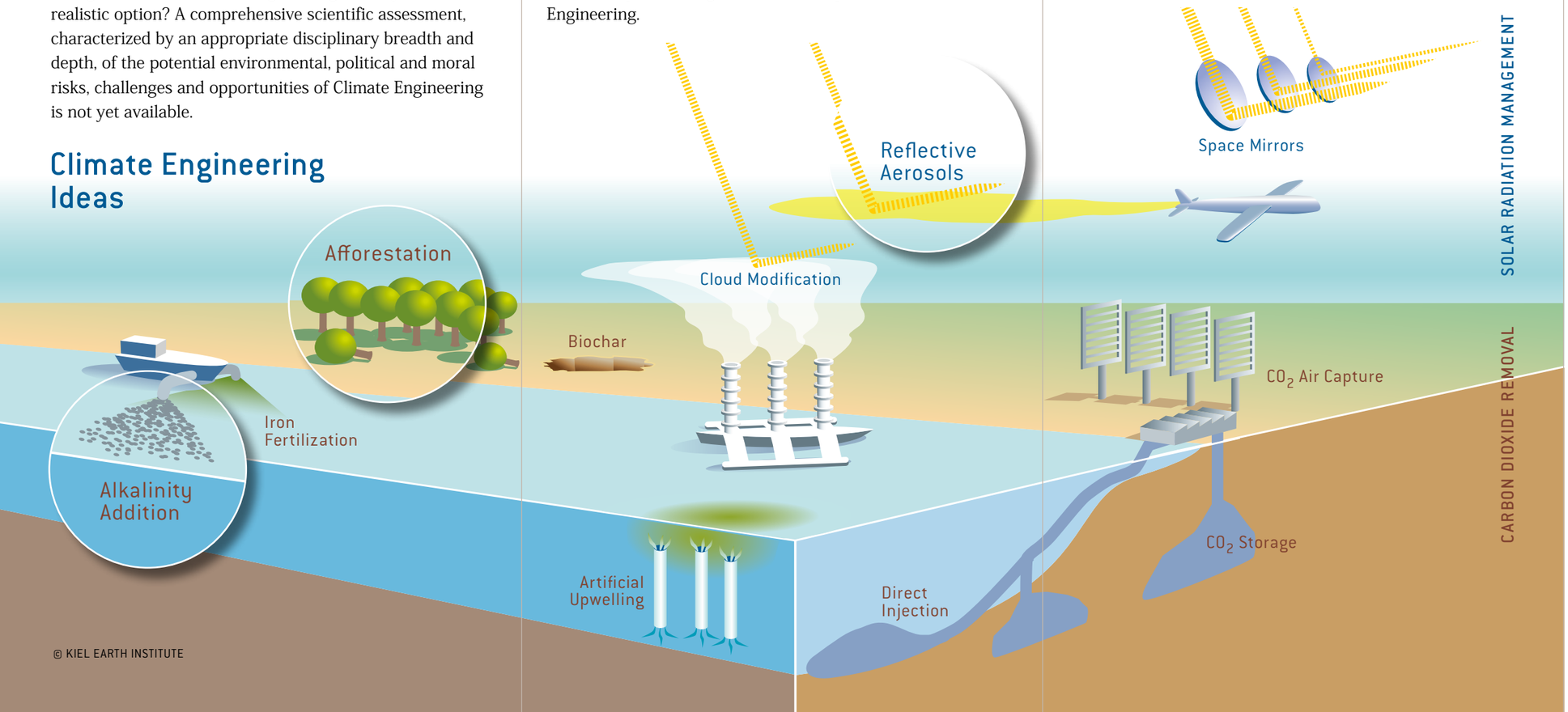
PRIORITY PROGRAMME 1689

The goal of the Priority Programme »Climate Engineering: Risks, Challenges, Opportunities« (SPP 1689) is to evaluate the potential effectiveness and side effects of several Climate Engineering methods on both short- and long-term, as well as regional and global scales. For a comprehensive assessment we consider the scientific and technical dimensions, as well as the social, political, legal and ethical aspects of Climate Engineering.

Risks,
Challenges,
Opportunities?

Sixteen universities and research institutes collaborate in nine sub-projects of the Priority Programme 1689 since April 2013. The first phase of the programme will run for a total of three years, funded with nearly five million Euros by the German Research Foundation (DFG) and is coordinated by Prof. Andreas Oschlies at the GEOMAR Helmholtz Centre for Ocean Research Kiel and the KIEL EARTH INSTITUTE.

Climate Engineering Ideas



CLIMATE ENGINEERING Risks, Challenges, Opportunities?

MAIN OBJECTIVES:

- Investigation of the climatic, ecological and social risks and potential effectiveness of different Climate Engineering methods
- Evaluation of the scientific and public perception of Climate Engineering
- Assessment – not development! – of Climate Engineering, including scientific, social, political, legal and ethical aspects

Three Climate Engineering methods, which exemplify the typical scales and characteristics of the different Climate Engineering ideas, are considered in the Priority Programme:

- Addition of alkaline (basic) substances to the ocean to increase the uptake of CO_2 from the atmosphere
- Injection of aerosols into the atmosphere, to increase the reflection of solar radiation and thus counteract global warming
- Afforestation to increase terrestrial carbon sequestration

The effects of the Climate Engineering methods are simulated with Earth system models. The uncertainties of these models must be carefully considered. Field experiments or research to develop Climate Engineering-measures will not be carried out.

More information about the Priority Programme 1689 and the individual projects is available at:

www.spp-climate-engineering.de